

Exploring the relationship between the economy, energy & transition

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Today's financial system

Gold standard for money: 1870 – 1971 (or thereabouts)

Bretton Woods (1944)

An ordered international monetary system

US, western Europe, Canada, Australia, Japan

Currencies linked by convertability to US dollars

Designed to regrow after WWII

Rested on both gold and the US dollar

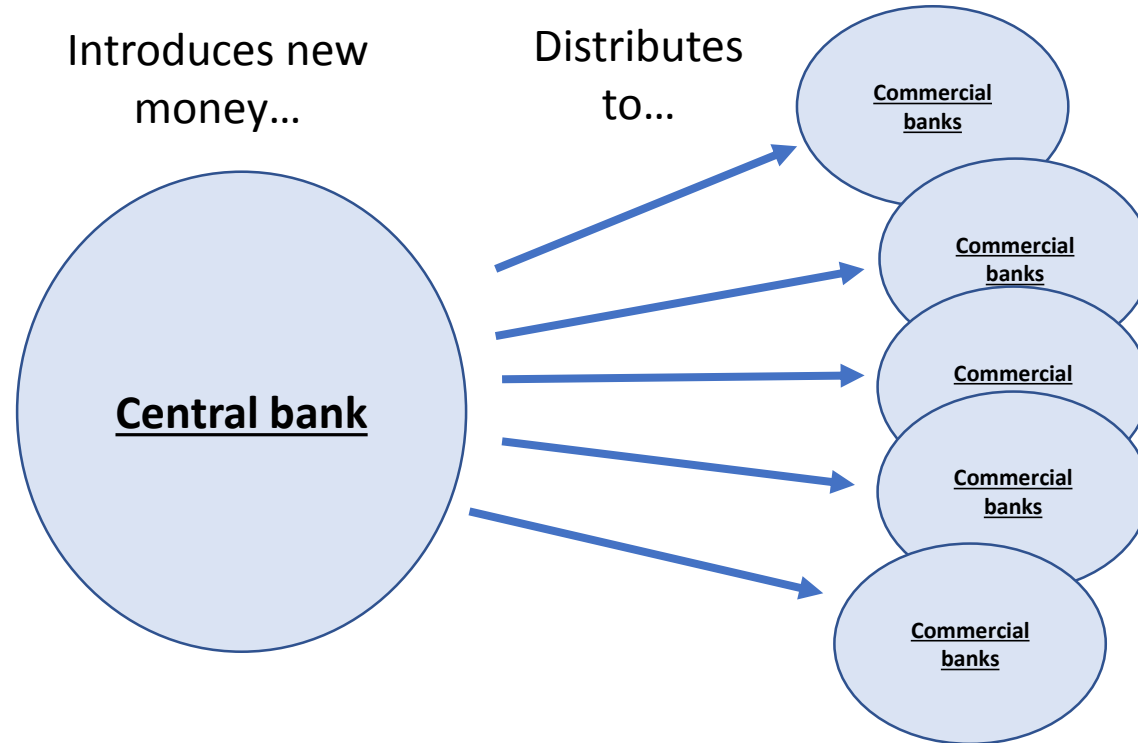
1971 US\$ - gold convertability terminated

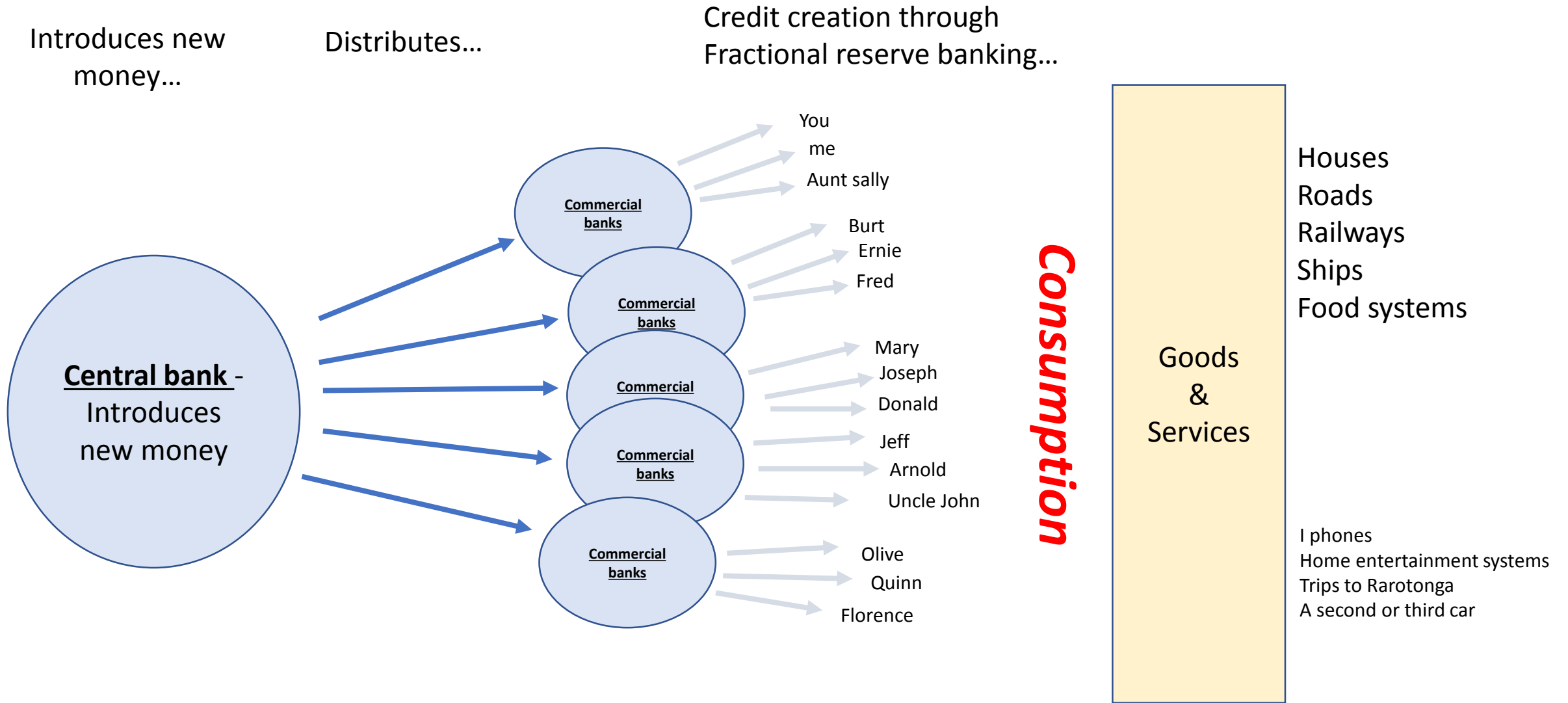
“prevented Fed expanding money supply to ‘prime pump’ for expansion”

Fiat currency – not backed by a commodity – yet with agreed value



Financial system schematic -

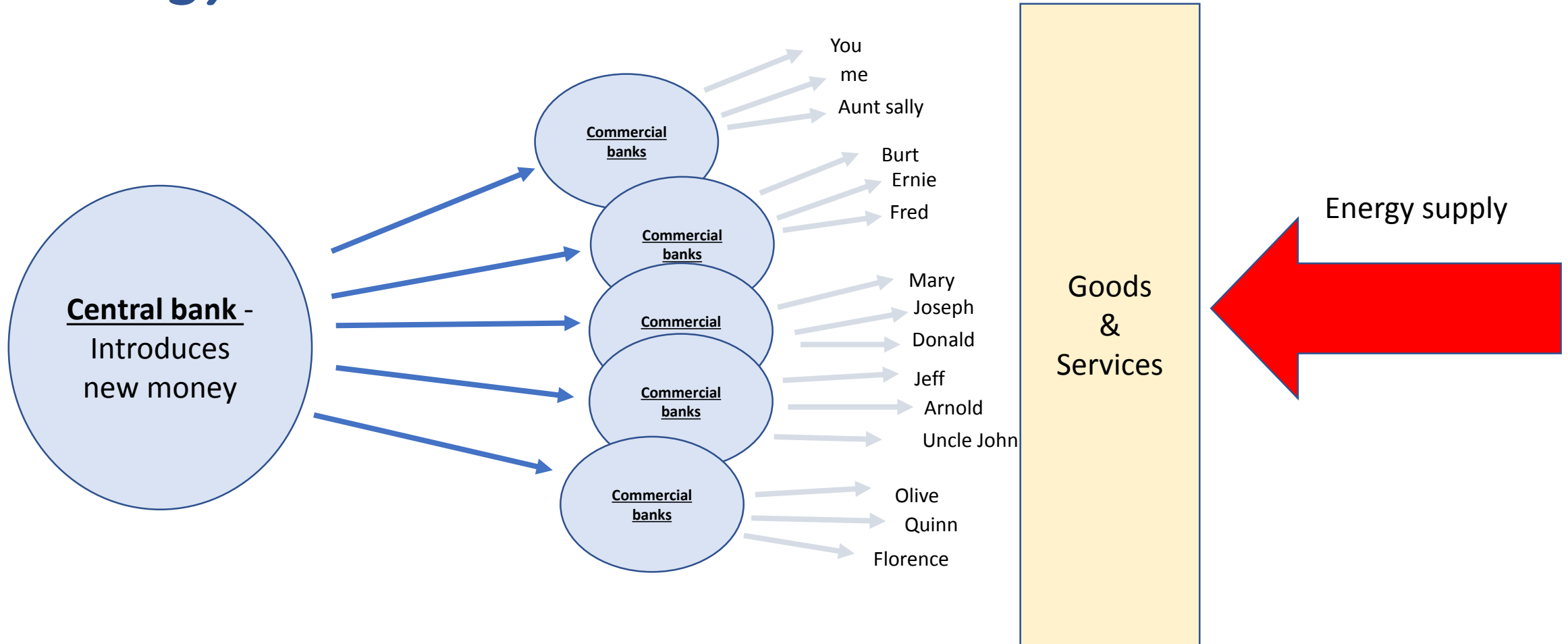




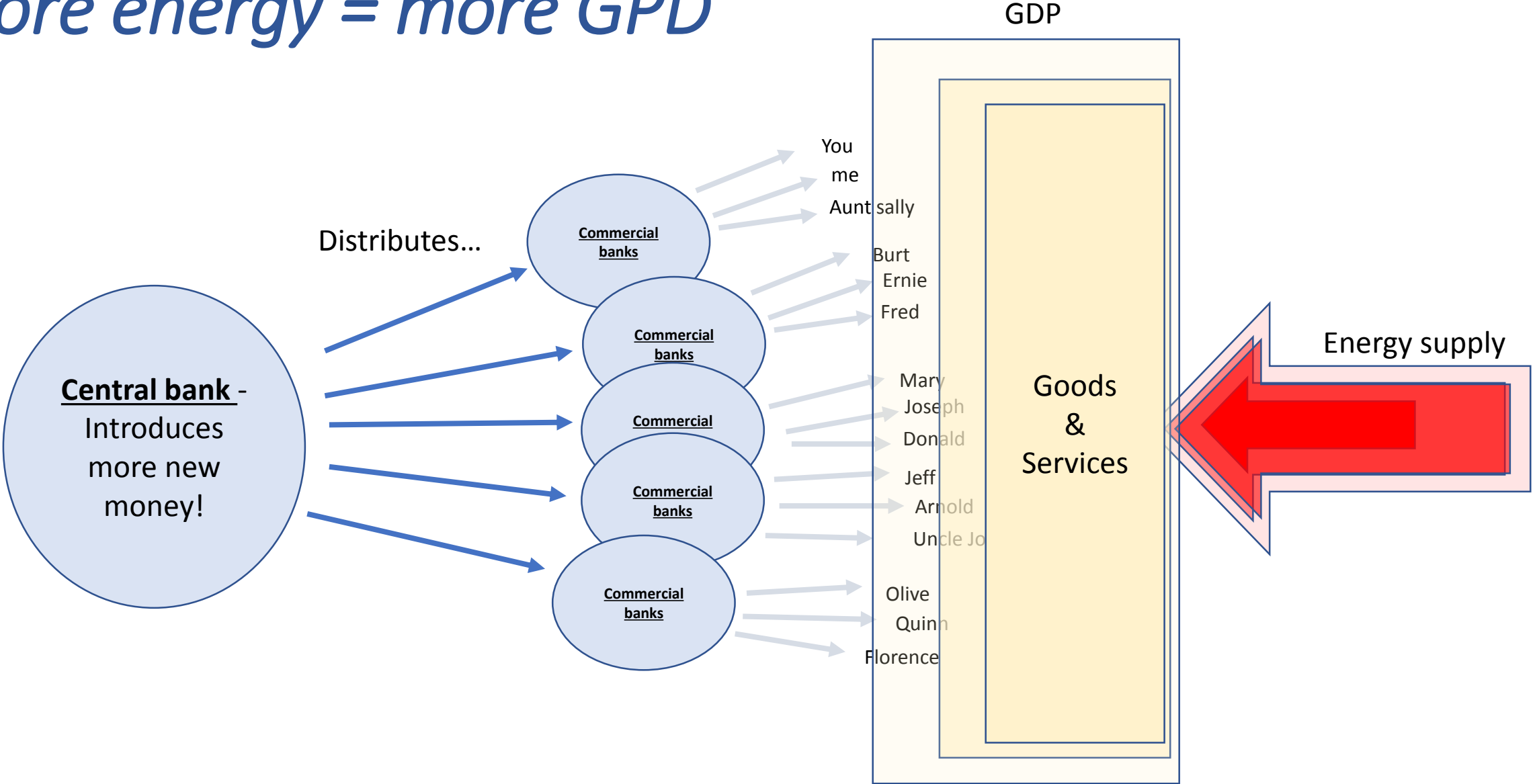
Monetary value of goods & services bought by final user = GDP

Important question: how are those goods and services created?

Energy – the driver



More energy = more GDP



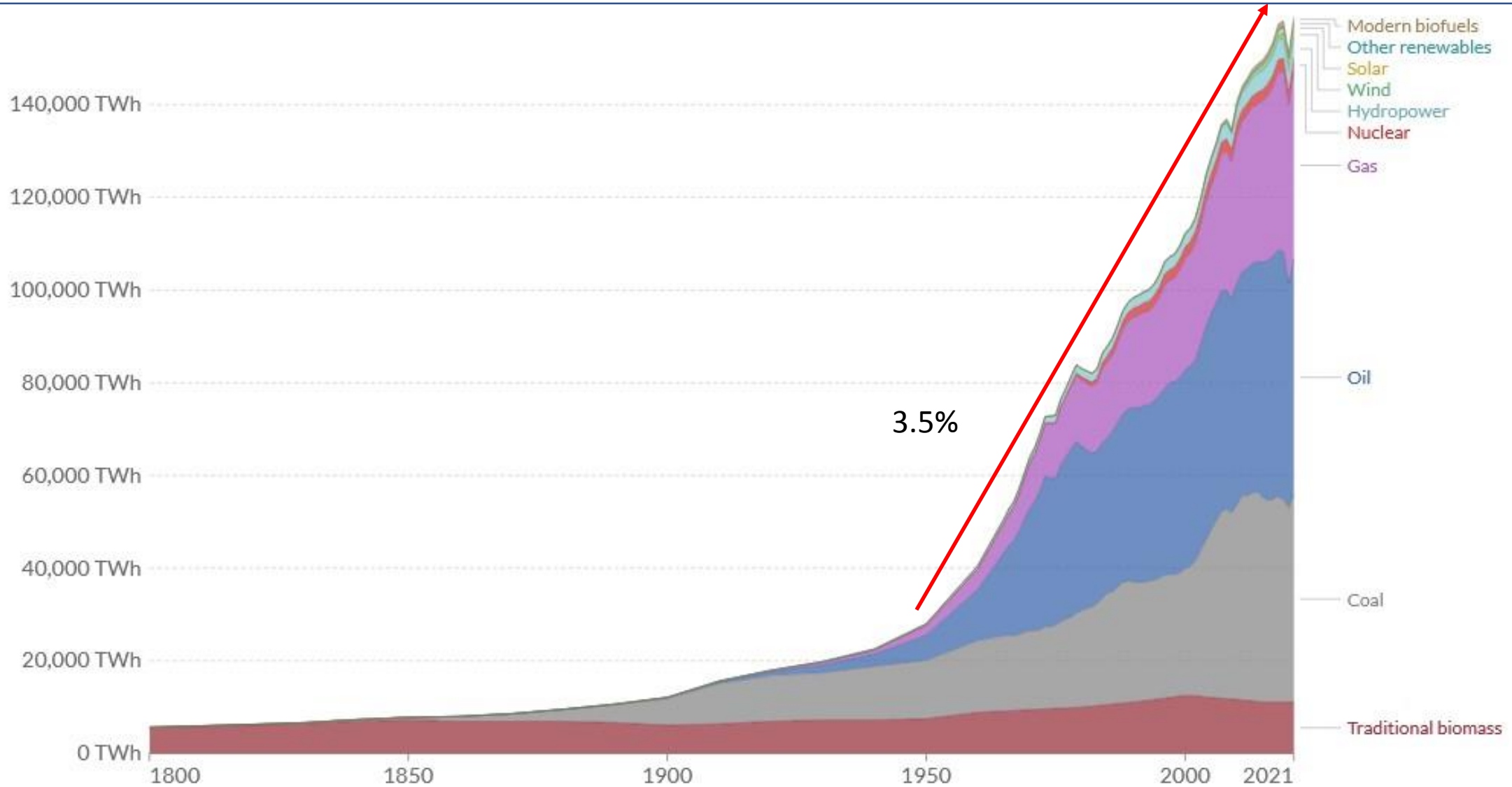
Role of energy in the economy -

Energy supply is critical for us, it drives our economy

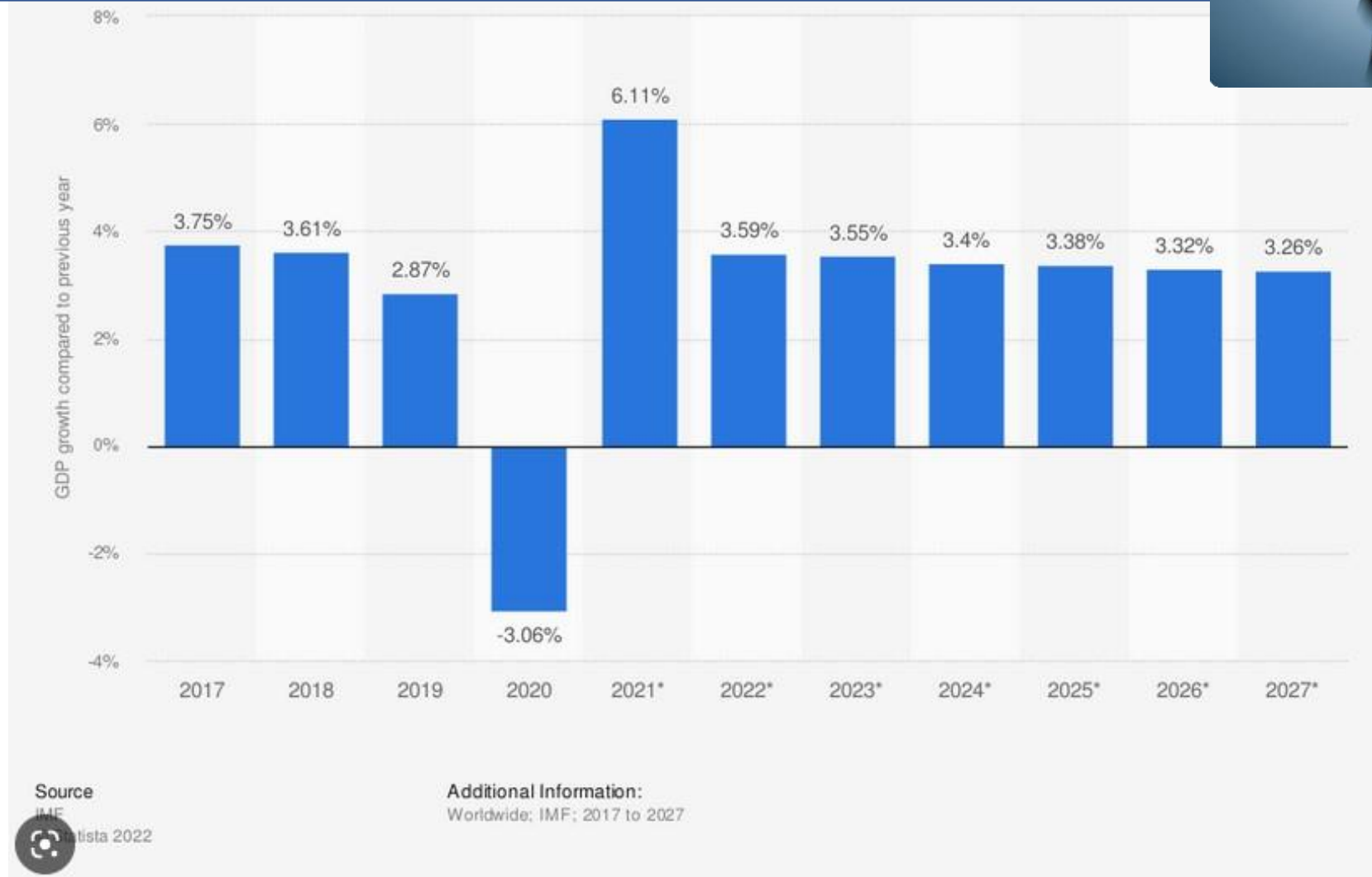
More energy = more goods and services = more money to enable consumption

Today's fiat currencies are tied almost perfectly to energy supply

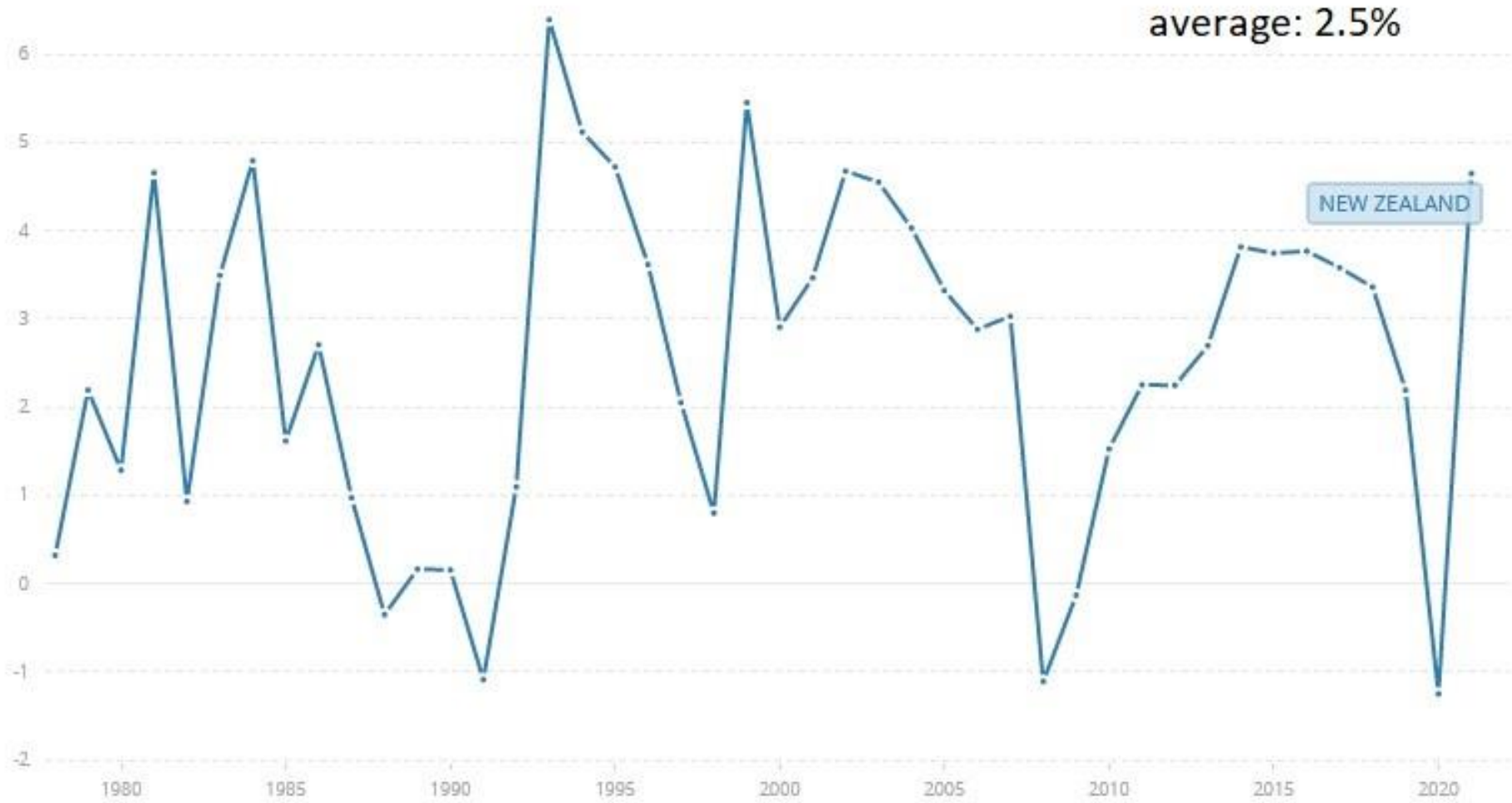
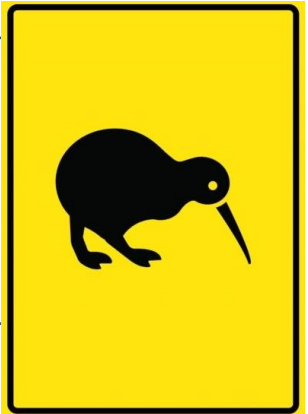
Global primary energy consumption



Global annual GDP growth



New Zealand annual GDP growth



Energy supply challenges

The composition of global oil supplies is dominated by trends in US tight oil and OPEC production

Energy Outlook (2022)



Amin Nasser (CEO)

World's 2nd largest oil exporter

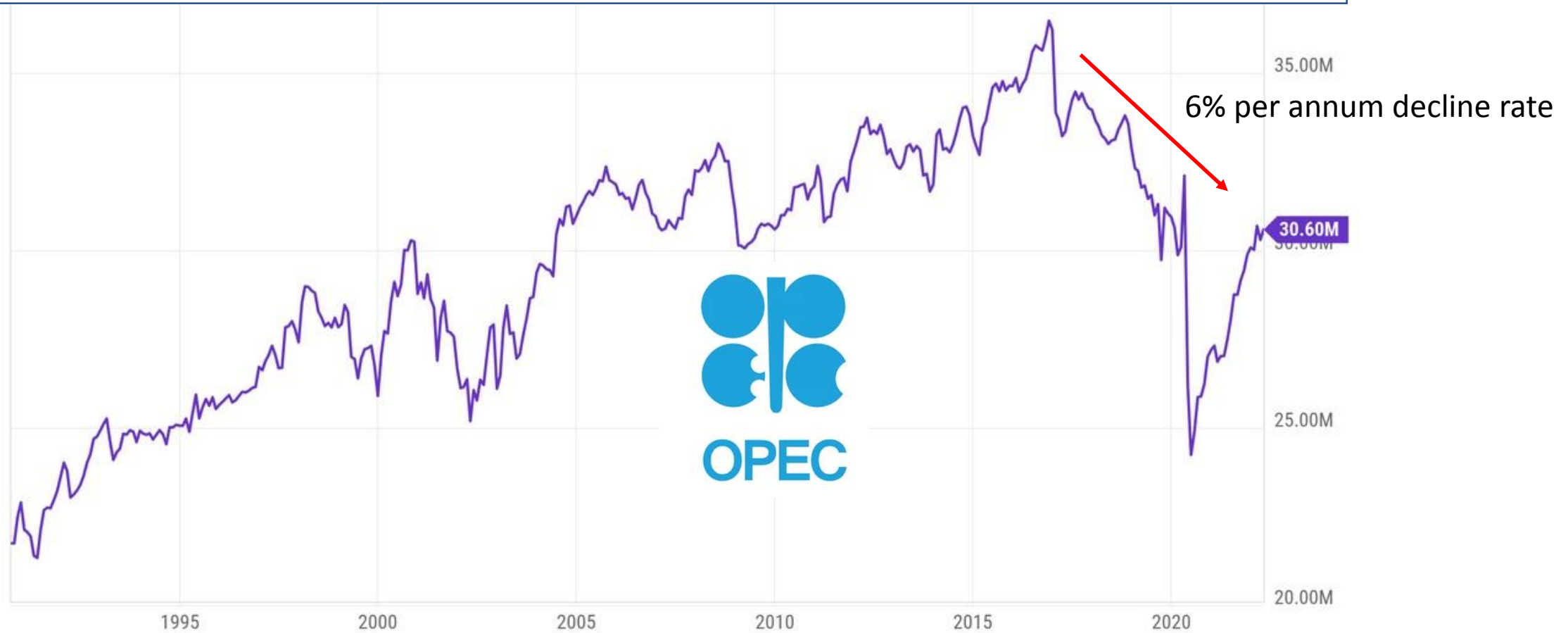
Schlumberger, Switzerland, September 2022

أرامكو السعودية
saudi aramco

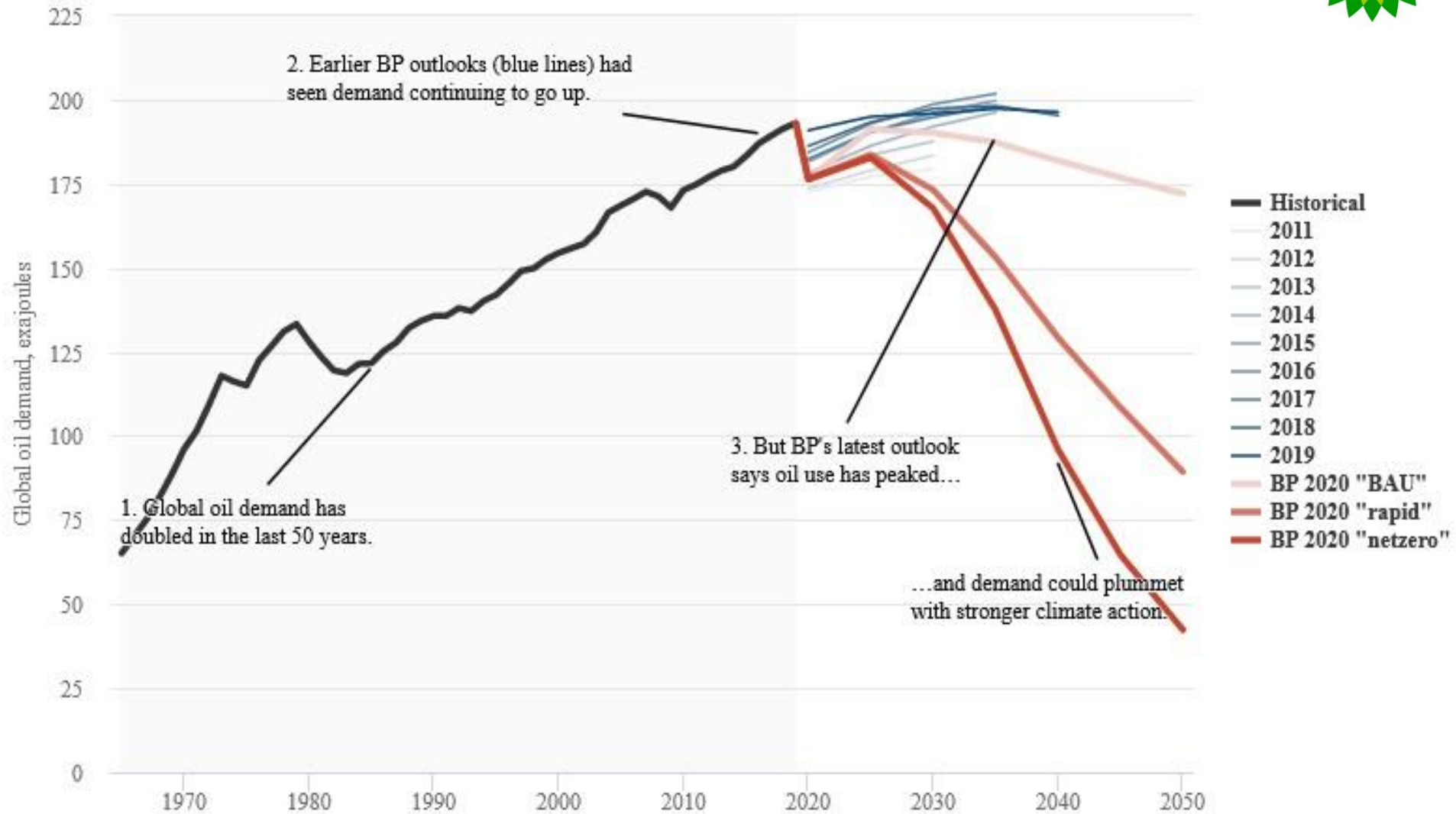


- “Global oil field production peaked 2017
- Declining ~6% per annum - 20% in some cases
- Investment in oil industry has halved since 2014 - \$7B/yr to 4B/yr
- Upstream development challenging – even to keep current production levels up”

30 years oil production to 2022



Spencer Dale (Chief Economist)



Coinciding with less coal and gas?

Less energy = less money

- Money supply must contract via
 - less circulating in economy
 - reduced value of a unit of money (inflation)
 - An equitable and low-cost transition
 - short term elasticity and other energy dimensions
- Result: *energy hardship*
- Engage with root cause as well as the impact
- Transition: plan & forecast with ***both*** economics & biophysics

Conclusion

- Energy – economy relationship is critical for society
- Oil – a key energy source – entering decline phase
- Economy must adapt & contract in step
- Transition solutions are physically achievable
- But success requires economic ***and biophysical*** planning
- Mansford Station developing biophysical pathways to compliment economic ones

Accommodation available

Clean tidy professional environment
Character style house
2 minutes to Port Chalmers
15 minutes to Uni
Good food
Vege garden
Share with Olive and Solis



Thank you



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